

Amendments to the Claims

Listing of the Claims:

This Listing of the Claims will replace all prior versions, and listings of the claims in the application.

1-99 (canceled).

100. (currently amended): A hapten-carrier conjugate comprising

at least one hapten derived from nicotine, wherein the hapten has the structure of nicotine-1'-N-oxide, trans-3'-hydroxycotinine or nicotine glucoronide; and

at least one carrier containing a T cell epitope and

wherein said hapten and said carrier are linked by a branch selected from the group of chemical moieties identified by CJ reference number consisting of:

| | |
|--------|--|
| CJ 0 | Q |
| CJ 1 | $(\text{CH}_2)_n\text{Q}$ |
| CJ 1.1 | CO_2Q |
| CJ 1.2 | COQ |
| CJ 1.3 | OCH_3 |
| CJ 2 | $\text{OCO}(\text{CH}_2)_n\text{Q}$ |
| CJ 2.1 | $\text{OCOCH}=\text{Q}$ |
| CJ 2.2 | $\text{OCOCH}(\text{O})\text{CH}_2$ |
| CJ 2.3 | $\text{OCO}(\text{CH}_2)_n\text{CH}(\text{O})\text{CH}_2$ |
| CJ 3 | $\text{CO}(\text{CH}_2)_n\text{COQ}$ |
| CJ 3.1 | $\text{CO}(\text{CH}_2)_n\text{CNQ}$ |
| CJ 4 | $\text{OCO}(\text{CH}_2)_n\text{COQ}$ |
| CJ 4.1 | $\text{OCO}(\text{CH}_2)_n\text{CNQ}$ |
| CJ 5 | $\text{CH}_2\text{OCO}(\text{CH}_2)_n\text{COQ}$ |
| CJ 5.1 | $\text{CH}_2\text{OCO}(\text{CH}_2)_n\text{CNQ}$ |
| CJ 6 | $\text{CONH}(\text{CH}_2)_n\text{Q}$ |
| CJ 7 | $\text{Y}(\text{CH}_2)_n\text{Q}$ |
| CJ 7.1 | $\text{CH}_2\text{Y}(\text{CH}_2)_n\text{Q}$ |
| CJ 8 | $\text{OCOCH}(\text{OH})\text{CH}_2\text{Q}$ |
| CJ 8.1 | $\text{OCO}(\text{CH}_2)_n\text{CH}(\text{OH})\text{CH}_2\text{Q}$ |
| CJ 9 | OCOC_6H_5 |
| CJ 10 | as identified in the application as FIG. 2b 4b |
| CJ 11 | $\text{YCO}(\text{CH}_2)_n\text{COQ};$ |

and wherein n is an integer; Y is S, O, or NH; and Q is the carrier.

101. (currently amended): The hapten-carrier conjugate of claim 100, wherein n is from about 3 to about 20.

102. (canceled)

103. (previously presented): The hapten-carrier conjugate of claim 100, wherein said carrier is selected from: proteins or peptides, bacterial toxins or products, subvirals, lectins, allergens and fragments of allergens, malarial protein antigen, artificial multi-antigenic peptides, and modifications, analogs and derivatives thereof.

104. (original) The hapten-carrier conjugate of claim 100, wherein greater than one hapten is coupled to the carrier.

Claims 105-108. (canceled)

109. (previously presented): A pharmaceutical preparation comprising the hapten-carrier conjugate of claim 100, and a pharmaceutically acceptable excipient.

110. (canceled).

111. (previously presented): The hapten-carrier conjugate of claim 101, wherein said carrier is proteins or peptides, bacterial toxins or products, subvirals, lectins, allergens and fragments of allergens, malarial protein antigen, artificial multi-antigenic peptides, and modifications, analogs and derivatives thereof.

112. (previously presented): The hapten-carrier conjugate of claim 100, wherein said carrier is cholera toxin B, diphtheria toxin, tetanus toxoid, pertussis toxin, filamentous hemagglutinin, Shiga toxin, pseudomonas exotoxin, ricin B subunit, abrin, sweet pea lectin,

retrovirus nucleoprotein, rabies nucleoprotein, tobacco mosaic virus, cauliflower mosaic virus, vesicular stomatitis virus-nucleocapsid protein, poxvirus subunit, Semliki forest virus vector or yeast virus-like particle.

113. (previously presented): The hapten-carrier conjugate of claim 101, wherein the carrier is cholera toxin B, diphtheria toxin, tetanus toxoid, pertussis toxin, filamentous hemagglutinin, Shiga toxin, pseudomonas exotoxin, ricin B subunit, abrin, sweet pea lectin, retrovirus nucleoprotein, rabies nucleoprotein, tobacco mosaic virus, cauliflower mosaic virus, vesicular stomatitis virus-nucleocapsid protein, poxvirus subunit, Semliki forest virus vector or yeast virus-like particle.

Claims 114-116 (canceled)

117. (previously presented): The pharmaceutical preparation of claim 109 further comprising an adjuvant.

118. (currently amended): The pharmaceutical preparation of claim 117, wherein the adjuvant is alum, MF59 or RIBI RIBI adjuvant.

119. (previously presented): The pharmaceutical preparation of claim 118, wherein the alum is aluminum hydroxide or aluminum phosphate.

120. (previously presented): The pharmaceutical preparation of claim 109 further comprising an auxiliary agent or supplementary active compound.

121. (previously presented): The pharmaceutical preparation of claim 109 which is suitable for parenteral administration to a human.

122. (previously presented): The pharmaceutical preparation of claim 109 which is suitable for oral, dermal or topical administration to a human.

123. (previously presented): A pharmaceutical preparation comprising the haptent-carrier conjugate of claim 112, and a pharmaceutically acceptable excipient.

124. (previously presented): The pharmaceutical preparation of claim 123 further comprising an adjuvant.

125. (new): A haptent-carrier conjugate comprising at least one haptent derived from nicotine, wherein the haptent is nicotine; and at least one carrier containing a T cell epitope and wherein said haptent and said carrier are linked by a branch selected from the group of chemical moieties identified by CJ reference number consisting of:

| | |
|--------|---|
| CJ 0 | Q |
| CJ 1 | $(CH_2)_nQ$ |
| CJ 1.1 | CO_2Q |
| CJ 1.2 | COQ |
| CJ 1.3 | OCH_3 |
| CJ 2 | $OCO(CH_2)_nQ$ |
| CJ 2.1 | $OCOCH=Q$ |
| CJ 2.2 | $OCOCH(O)CH_2$ |
| CJ 2.3 | $OCO(CH_2)_nCH(O)CH_2$ |
| CJ 3 | $CO(CH_2)_nCOQ$ |
| CJ 3.1 | $CO(CH_2)_nCNQ$ |
| CJ 4 | $OCO(CH_2)_nCOQ$ |
| CJ 4.1 | $OCO(CH_2)_nCNQ$ |
| CJ 5 | $CH_2OCO(CH_2)_nCOQ$ |
| CJ 5.1 | $CH_2OCO(CH_2)_nCNQ$ |
| CJ 6 | $CONH(CH_2)_nQ$ |
| CJ 7 | $Y(CH_2)_nQ$ |
| CJ 7.1 | $CH_2Y(CH_2)_nQ$ |
| CJ 8 | $OCOCH(OH)CH_2Q$ |
| CJ 8.1 | $OCO(CH_2)_nCH(OH)CH_2Q$ |
| CJ 9 | $OCOC_6H_5$ |
| CJ 10 | as identified in the application as FIG. 2b |

and wherein n is an integer; Y is S, O, or NH; and Q is the carrier.

126. (new): The hapten-carrier conjugate of claim 125, wherein n is from 3 to 20.

127. (new): The hapten-carrier conjugate of claim 125, wherein said carrier is selected from: proteins or peptides, bacterial toxins or products, subvirals, lectins, allergens and fragments of allergens, malarial protein antigen, artificial multi-antigenic peptides, and modifications, analogs and derivatives thereof.

128. (new): The hapten-carrier conjugate of claim 125, wherein greater than one hapten is coupled to the carrier.

129. (new): The hapten-carrier conjugate of claim 125, wherein the carrier is cholera toxin B, diphtheria toxin, tetanus toxoid, pertussis toxin, filamentous hemagglutinin, Shiga toxin, pseudomonas exotoxin, ricin B subunit, abrin, sweet pea lectin, retrovirus nucleoprotein, rabies nucleoprotein, tobacco mosaic virus, cauliflower mosaic virus, vesicular stomatitis virus-nucleocapsid protein, poxvirus subunit, Semliki forest virus vector or yeast virus-like particle.

130. (new): The hapten-carrier conjugate of claim 129, wherein said carrier is cholera toxin B, diphtheria toxin, tetanus toxoid, pertussis toxin, ricin B subunit, abrin, sweet pea lectin, retrovirus nucleoprotein, rabies nucleoprotein, tobacco mosaic virus, vesicular stomatitis virus-nucleocapsid protein, or poxvirus subunit.

131. (new): A pharmaceutical preparation comprising the hapten-carrier conjugate of claim 125, and a pharmaceutically acceptable excipient.

132. (new): The pharmaceutical preparation of claim 131, further comprising an adjuvant.

133. (new): The pharmaceutical preparation of claim 132, wherein the adjuvant is alum or RIBI adjuvant.

134. (new): The pharmaceutical preparation of claim 133, wherein the adjuvant is alum.

135. (new): The pharmaceutical preparation of claim 134, wherein the alum is aluminum hydroxide or aluminum phosphate.

136. (new): The pharmaceutical preparation of claim 131, further comprising an auxiliary agent or supplementary active compound.

137. (new): The pharmaceutical preparation of claim 131 which is suitable for parenteral administration to a human.

138. (new): The pharmaceutical preparation of claim 131 which is suitable for oral, dermal or topical administration to a human.

139. (new): A pharmaceutical preparation comprising the hapten-carrier conjugate of claim 130, and a pharmaceutically acceptable excipient.

140. (new): The pharmaceutical preparation of claim 139 further comprising an adjuvant.